City of Aberdeen



Chapter 4 - TRANSPORTATION ELEMENT

Introduction

This Transportation Plan was prepared in 2009 by Kittelson & Associates, Inc. as part of the overall update of Aberdeen's Comprehensive Plan. It is intended to meet the requirements for transportation elements under Article 66B of the Annotated Code of Maryland, which requires the Plan to "Propose the most appropriate and desirable patterns for the general location, character and extent of channels, routes, and terminals for transportation facilities and for the circulation of persons and goods on a schedule that extends as far into the future as is reasonable."

The Plan identifies transportation goals, objectives, and projects to support the City's plans for future changes in land use as well as for infill and re-development of existing areas. The transportation goals and objectives are provided in Chapter 2 – Land Use Element.

Existing Conditions and Opportunities

Highways/Roads

The roadway system provides the basic framework linking all of Aberdeen's transportation modes. The Maryland State Highway Administration (SHA) manages regional routes, while local access and circulation are the responsibility of the City of Aberdeen. Harford County has jurisdiction over non-State facilities in the planning areas outside of the City limits.

The following discussion organizes the road system in highest to lowest hierarchical order. It begins with a functional description within the road network, and then presents the highway in the context of adjacent land use and physical characteristics. Please refer to Map 1 found on Page 4-4. Table 4-1 identifies the major roadway facilities in the City of Aberdeen and characterizes their attributes.



Table 4-1: Major Roadway Facilities

Roadway	Route Number	Functional Classification	Number of Lanes	Sidewalks	Bicycle Lanes	On-Street Parking
Aberdeen Thruway	MD 22	Freeway Expressway	4 Lanes	Partial	No	Partial
Philadelphia Boulevard	US 40	Other Principal Arterial	4 Lanes	Partial	Yes	Partial
Paradise Road	MD 462	Minor Arterial	2 Lanes	Partial	Yes	No
Short Lane	MD 715	Minor Arterial	4 Lanes	No	No	No
W Bel Air Avenue	MD 132	Minor Arterial	2 Lanes	Partial	No	Partial
Post Road	MD 132B	Collector	2 Lanes	Partial	No	Yes
Beards Hill Road	MD 132A	Collector	4 Lanes	Partial	No	Partial
Maxa Road		Collector	2 Lanes	No	No	No





Interstate 95 (I-95)

I-95 passes through the northern quadrant of the City and has three lanes in each direction in a 300-foot depressed right-of-way. It currently carries over 100,000 vehicles per day in both directions in this segment. The interchange at MD 22 provides primary access to Aberdeen from I-95. I-95 is managed by the Maryland Transportation Authority (MdTA). While I-95 is a vital link to the City, it presents a challenging barrier between the City's core, Aberdeen Proving Ground (APG), and growth areas to the west. Three links are key to bridging I-95: Bush Chapel Road, MD 22, and Maxa Road.

Aberdeen Thruway (MD 22)

Aberdeen Thruway serves as the primary connection between I-95, Ripken Stadium and attractions within the City, including downtown Aberdeen and APG. The roadway is currently classified as a Freeway/Expressway, which limits access and prioritizes through movements. MD 22 has grade-separated interchanges at I-95 and US 40. The route provides access to large-commercial centers and



residential neighborhoods from signal-controlled cross streets. A cluster of housing fronts the road to the north and south around the Paradise Road intersection.

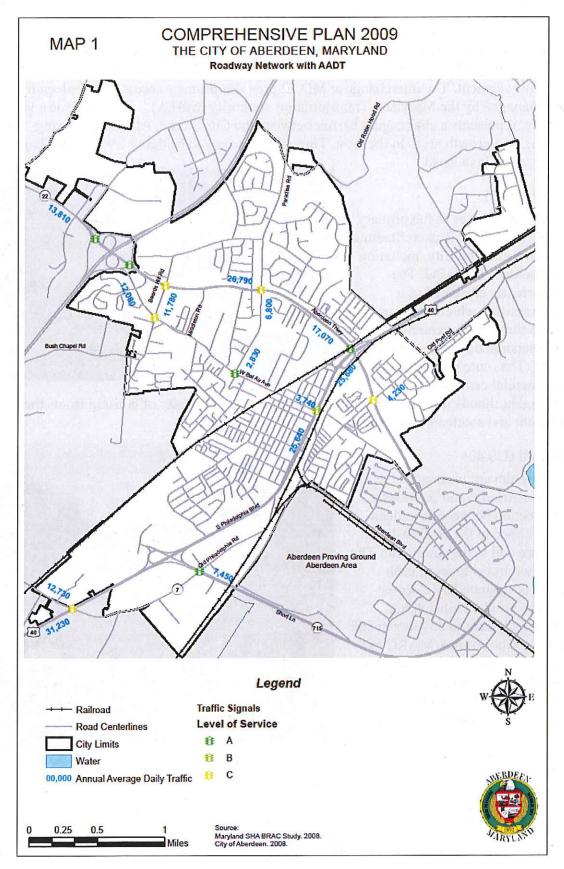
Philadelphia Boulevard (US 40)

Philadelphia Boulevard is classified as an Other Principal Arterial and provides a regional connection between Aberdeen and Havre de Grace to the northeast, and Belcamp/Edgewood to the southwest. The roadway has two travel lanes in each direction, and is separated by a center median at some points. Philadelphia Boulevard runs adjacent to downtown and separates it from the Amtrak/MARC rail station. The road is designed as an open section with shoulders as it approaches strip commercial development on either side of downtown Aberdeen.



¹ MDTA is currently conducting a study of I-95 from north of MD 43 to north of MD 22.





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The approaches introduce suburban and urban features including 5-foot sidewalks, a service road, on-street parking, commercial driveways, and signage designating it as a bicycle route. Block spacing through the urban section is approximately 475 feet, with signals located over a mile apart.

Paradise Road (MD 462)

Paradise Road is a Minor Arterial that provides access to Aberdeen from the north across MD 22 and MD 132. Direct access is available to Paradise Road from individual properties along the roadway. The roadway also offers access across MD 22 to Aberdeen High School. The adjacent land uses are primarily residential, with a significant area between MD 22 and MD 132 dedicated to use by the high school.

West Bel Air Avenue (MD 132)

West Bel Air Avenue is classified as a Minor Arterial and provides an east-west connection through the City, offering relief to the Aberdeen Thruway. The roadway serves both commercial and residential land use, producing a rapid transition in character and traffic accommodation. Toward the northwest portion of the City it acts as a suburban-style roadway, accommodating shopping plaza access with limited bicycle and pedestrian facilities and wide block spacing (about 650 feet on average). W Bel Air Avenue also provides access to downtown between the CSX rail corridor and the intersection with Philadelphia Boulevard, balancing through traffic demand and town center multimodal access. Approaching downtown, the road passes through a traditional neighborhood of historic homes and more walkable streets. The more urban setting found within the downtown core includes on-street parking, sidewalks, marked crosswalks, and relatively close block spacing (about 450 feet on average).

Short Lane (MD 715)

Short Lane is classified as a Minor Arterial and provides primary access to the visitors and employees of APG from South Philadelphia Boulevard. It intersects with South Philadelphia Boulevard as a grade-separated interchange and is currently under construction as part of the Aberdeen BRAC improvements. Short Lane is a divided, four-lane facility with limited access and shoulders, with no on-street parking, sidewalks, or marked bicycle accommodation.



Post Road (MD 132 B)

Post Road, classified as a Collector, offers a north-south connection within the City and provides an alternative to Philadelphia Boulevard. It runs on the south side of the Amtrak rail tracks, making it one of the few connector roads in the southern neighborhood and near the APG. The road is designed to accommodate residential uses (on-street parking provided in front of residential properties) and commercial uses; both uses have individual access driveways and on-site parking.

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Beards Hill Road (MD 132 A)

Beards Hill Road, also classified as a Collector, operates as a north-south link running north from West Bel Air Avenue across Aberdeen Thruway and serves large format commercial uses concentrated in the City's western portion. The roadway rapidly shifts to a more rural character north of Aberdeen Thruway and to a transitional portion of Bush Chapel Road south of West Bel Air Avenue. Between the two major roads, Beards Hill Road is a five-lane, divided roadway accommodating suburban-style retail centers. There are no sidewalks or bike lanes on the west side of Beards Hill Road, and block spacing is about 625 feet on average.

Bush Chapel Road

Bush Chapel Road is classified as a Collector transitioning from a rural lane to one that creates access to the west to land area adjacent to Stepney Road. Between West Bel Air Avenue and Kretlow Drive, the roadway transitions from commercial to residential use. Access to the road is available via individual driveways, including through a new single-family residential section. Along the roadway sidewalks are provided adjacent to the most recent development, but much of the road has no bicycle or pedestrian amenities. Roadway widening, sidewalk additions and disabled access improvements were recently completed to make the road compatible with redevelopment near West Bel Air Avenue and Kretlow Drive. While some areas have been widened and improved, there are narrow portions (about 24 feet) without a curb and gutter. Block spacing is staggered and is about 145 feet on average.

Local Roads

Local roads in the City of Aberdeen take several forms:

- In and around downtown and to the east of Amtrak, they occur as an urban grid in smaller blocks. These areas are generally well connected on all sides except where there are rail barriers. Examples of local roads include Norman Avenue and Smith Avenue.
- A second form occurs in the City's more recent residential neighborhoods, where internal streets are well connected but rely on only one or two access points typically oriented to one side of the neighborhood.
- A third type is the single road with direct connection to the main line.
 This occurs in parts of the City that are still rural.



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Opportunities

The City can begin to change a course that has focused on internally oriented site circulation and access. Two major opportunities are the growth areas beyond the City limits that will occur through annexations. These areas offer an opportunity to plan for connections that will link to existing City streets. Future annexation areas should be envisioned with a transportation framework that will make the most of developer investment in infrastructure. New development and re-development areas present opportunities for paths and street connections that will link to the existing system.

A more robust network of functioning collectors that are sized appropriately for alternative transportation modes will disperse the traffic and, in doing so, preserve vehicle capacity on existing facilities. This type of approach will permit the City to enjoy the benefits of growth with fewer impacts on the existing infrastructure and quality of life. It is important to make the best use of roads designed to handle through and truck traffic, such as MD 715, MD 22 and US 40, and to reduce impacts to scenic rural roads and neighborhood streets. Maintaining routes for through traffic, as well as for comfortable and safe links between neighborhoods, employment districts, and civic uses, with accommodations for cyclists, pedestrians, and transit riders, balance the system for all users.

Traffic Conditions

Traffic operations were analyzed for all signalized intersections in Aberdeen by SHA as part of the BRAC study.² The analysis is based on manual turning movement counts. The method used was the Critical Lane Volume analysis, which is a high planning-level analysis. Table 4-2 summarizes the existing Levels of Service (LOS)³ at the major intersections in Aberdeen. As shown in Table 4-2, all of



the major intersections operate at LOS C or better during the peak hours of the day.

Opportunities

While there are currently no significant congestion issues in Aberdeen, opportunities exist to manage travel demand by providing viable alternative modes of travel. Additionally, roadway extensions can be made within the existing grid network to reduce point loading and balance network demand.

² URS Corporation on behalf of Maryland State Highway Administration. *BRAC Transportation Study, Aberdeen Proving Ground, Harford County*: Technical Memorandum No. 2A: Future Conditions (Year 2015 and 2030) Analyses Final Report. 2008.

³ Level of Service or LOS is a measure used to indicate the quality of an intersection or roadway performance for the user, typically and in this case, the motorist. LOS designations range from A to F, with grade A typically providing the least travel delay. Signalized intersection LOS should typically be rated C or D to be sure the capacity available is being efficiently managed by the traffic signals. LOS of E & F are considered failing and suggest the need to change signal timing, or add capacity at the location or at an alternative location nearby.



Table 4-2: Existing Conditions at Major Intersections

		, A	AM	PM		
Intersection	Control	LOS	V/C	LOS	V/C	
W Bel Air Ave / Beards Hill Rd	Signal	A	0.47	С	0.77	
W Bel Air Ave / Paradise Rd	Signal	A	0.48	A	0.46	
W Bel Air Ave / S Philadelphia Blvd	Signal	В	0.64	В	0.67	
Aberdeen Thruway / I-95 SB Off Ramp	Signal	A	0.29	A	0.32	
Aberdeen Thruway / I-95 NB Off Ramp	Signal	A	0.32	A	0.48	
Aberdeen Thruway / Beards Hill Rd	Signal	A	0.56	С	0.72	
Aberdeen Thruway / Paradise Rd	Signal	С	0.80	C	0.74	
Aberdeen Thruway / Philadelphia Blvd On/Off Ramps	Signal	A	0.55	A	0.57	
Philadelphia Blvd / Aberdeen Thruway On/Off Ramps	Signal	A	0.48	A	0.51	
Aberdeen Thruway / N Post Rd	Signal	A	0.53	C	0.75	
Short Ln. / Philadelphia Blvd EB On Ramp	Signal	A	0.18	A	0.39	
Short Ln. / Philadelphia Blvd WB On/Off Ramp	Signal	A	0.20	A	0.38	
Short Ln. / Old Philadelphia Rd	Signal	A	0.51	A	0.54	

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Parking

Three municipal parking lots in downtown Aberdeen provide 237 free spaces. In addition, there is free on-street parking in the City. The parking lots are located at Park and Walnut, Festival Park, and Rogers Street across from the Main Firehouse. There is minimal enforcement of the two-hour limit for on-street parking.

Opportunities: The demand for parking in Aberdeen has increased with the City's growth and enforcement of the parking limits will probably become necessary. As downtown activity increases, on-street parking spaces need managing to ensure availability of short-term parking for customers. Managed parking typically leads to parking fees. The fees result when costs are incurred by the local jurisdiction for enforcement of the parking regulations. As demand at the nearby rail station increases, there may also be



commuter encroachment into on-street spaces in downtown.

The City should assure that the Development Code permits shared parking downtown and in future mixed-use areas and zones to accommodate the demands for both short-term and long-term parking that will arise. The City should consider a cap on the amount of parking to be provided in the vicinity of the future transit center. If the parcels around the station are mixed-use developments that promote walkability, parking caps can lead to increased pedestrian and bus access to the rail station.

Transit Services and Facilities

Rail Station and Service

The Aberdeen Rail Station, located downtown at the intersection of US Route 40 and Bel Air Avenue, is served by Amtrak and the MARC system. Although not designed as such, the station parking lot serves as a transit hub for local and regional buses. The station is situated along Amtrak's Northeast Corridor, which links Washington, D.C., to Boston. On weekdays and weekends, five Amtrak trains travel north from Aberdeen toward Wilmington and Philadelphia, and five trains head south toward Baltimore and Washington, D.C. There are five southbound MARC trains and six northbound MARC trains each weekday. No weekend MARC service is provided. The Maryland Transit Administration (MTA) operates the MARC system and provides free parking for commuters. There are 268 designated parking spaces at the station and within close proximity to the station. In 2007, an average of 214 people boarded MARC trains in Aberdeen destined to points south. Transit demand is increasing and recent MTA counts have





revealed 275 cars parking at the station. MTA will analyze data on the origins of existing commuters to better understand future commuter access and parking needs for this station.⁴ Existing transit service is illustrated in Map 2 located on Pg. 4-12. The MTA Real Estate Department has obtained an appraisal for the Hinder Used Car lot and it is being reviewed with an offer expected in October 2010. This property will be part of the parking expansion project.

Opportunities: More frequent southbound MARC service will attract additional riders, but the present limitation on parking at the Aberdeen station may prevent new commuters from availing themselves of MARC service from Aberdeen. Northbound MARC service from Baltimore to Aberdeen is anticipated to support BRAC expansion at Aberdeen. The APG Garrison is completing plans to provide a shuttle from the Aberdeen Train Station to transport employees on the installation. The shuttle will be based on



the demand. Secure bicycle parking and safe bicycle access to the station from nearby neighborhoods should be available for those able to use this more affordable, healthy, and environmentally responsible alternative to driving.

APG Road is adjacent to the MARC station and is owned by APG. The MTA proposes to expand commuter parking by providing additional spaces along APG Road and on a parcel north of the station. This near-term improvement is dependent upon successful negotiations with APG officials. This effort will provide up to 180 additional parking spaces. The MTA's free-parking policy gives an advantage to those who drive rather than walk and those riding transit to the station.

Currently, the station functions mainly as a boarding location for Aberdeen-area commuters headed south on the MARC train. Amtrak passengers traveling in both directions also board at the station. The influx of jobs associated with the BRAC expansion at APG introduces the potential for the station to become a more significant rail destination. There is considerable interest in the establishment of a multimodal transit center in Aberdeen, and MDOT has funded a feasibility study to examine the economic potential for it.

Harford County, the MTA, and the City have completed an additional study examining options for a multimodal transit center. The most desirable scenario examined re-development of the existing rail station area into a well-functioning, multimodal station. Since the existing rail station is situated within the designated revitalization district in downtown Aberdeen, alternative future uses for the station site were identified in the study.

⁴ There is also an historic CSX Train station located at the crossing of Bel Air Avenue and the CSX rail line west of downtown. The CSX freight train does not stop in Aberdeen. There is an at-grade rail crossing at Bel Air Avenue. The station structure has been vacant for some time and is deteriorated.





Bus Services

Aberdeen is served by a local bus circulator, in addition to fixed bus routes throughout the population centers of Harford County, and a commuter bus route. Harford County Transit LINK (http://www.harfordcountymd.gov/services/transportation) operates the local circulator known as the Doodlebug and the fixed bus routes connecting the major population centers and destinations within the County. The commuter bus service to Baltimore is provided by MTA. Transfers between the different bus lines and rail can be made at the MARC Rail Station in Aberdeen.

The Doodlebug (Route #4) generally operates from 8:30 a.m. to 3:30 p.m. and serves various locations within Aberdeen. The most recent data indicate that the Klein's Shop Rite Store and Wage Connection on Beards Hill Road are the busiest of the 20 designated Doodlebug stops. An average of 56 people travel on the Doodlebug each day.

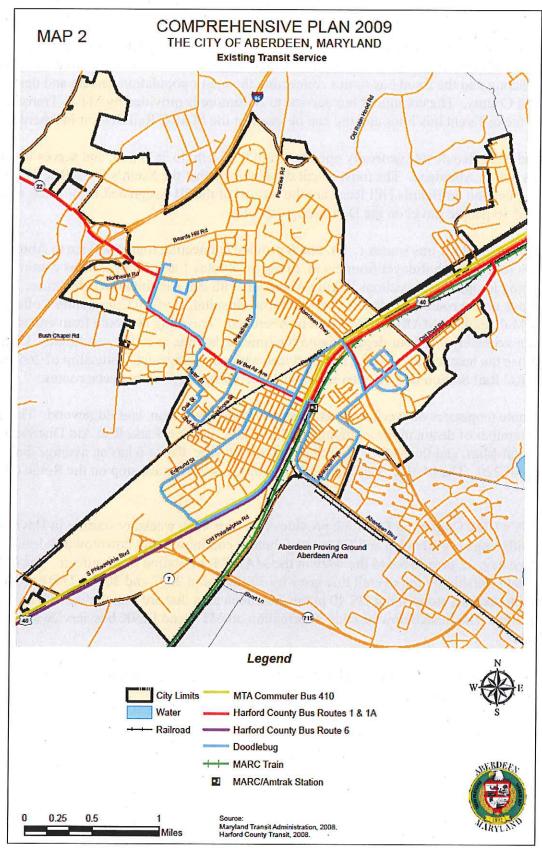
Harford Transit LINK bus routes 1, 1A, and 6 provide connecting transit service to Aberdeen on weekdays (excluding holidays) from 6 a.m. to 6 p.m. Routes 1 and 1A operate as continual fixed routes going in opposite directions linking Aberdeen with Bel Air and Havre de Grace. Major destinations on the route include Harford Memorial Hospital, Harford Community College, Harford Mall, and the MARC Rail Station in Aberdeen. Traveling the route from end to end takes approximately one hour depending on the time of day due to traffic conditions. LINK Route 1 has the heaviest use of all LINK services with an average daily ridership of 265 trips. The MARC Rail Station in Aberdeen is the busiest connection point between routes.

LINK Route 6 operates on weekdays between Aberdeen, Perryman, and Edgewood. This route serves a number of destinations including the Riverside Business Park, Rite Aid Distribution Center, Wal-Mart, and the MARC Rail Station in Aberdeen. Route 6 has an average daily ridership of 220. The MARC Rail Station in Aberdeen is the busiest stop on the Route 6 bus line.

The MTA's #420 Commuter Bus Line provides five trips each weekday starting in Havre de Grace, with stops in Aberdeen and Edgewood, before continuing into downtown Baltimore. On an average day, 22 people board the #420 at the MARC Rail Station in Aberdeen. The MTA reports that ridership on the overall line grew by 7% between 2007 and 2008. There are three other commuter bus stops along US 40 in the Aberdeen area that are designated with an MTA bus stop sign. The links below provide information on MTA and LINK bus service to and from Aberdeen.

MTA Commuter Service – http://mta.maryland.gov/services/commuterbus/schedules <a href="http://mta.maryland.gov/services/commuterbus/schedules/commute





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Opportunities: Transit has the potential to provide a commuting alternative for those heading to APG and its immediate environs.

Together, both rail and bus services could help meet the needs of commuters and reduce the number of vehicles traveling through Aberdeen. Establishing a commuter parking lot convenient to I-95



with shuttle service to APG is to be considered. This could involve lease agreements with private property owners. There is no shuttle service from the existing park-and-ride lot on Technology Drive, and the lot is underutilized. Potential locations for a larger and more prominent park-and-ride facility are the City-owned Ripken Stadium lot, or nearby shopping centers where peak demand is complimentary to daytime use by APG staff. The MTA and Harford County Transit Services (HCTS) are both interested in assessing the viability of direct transit services to APG. The APG Garrison is completing plans to provide a shuttle from the Aberdeen Train Station to transport employees to the installation. The shuttle will be based on the demand. As part of its BRAC initiatives, the MTA is also looking into the feasibility of providing additional commuter bus services. Potential future services to APG could originate in Baltimore City, Baltimore or Cecil counties, Southern Pennsylvania, or New Castle County, Delaware. A transfer connection to the APG shuttle is important.

The MTA's recently completed MARC Growth and Investment Study identified short- and long-term improvements for commuter rail services throughout the state. In the short term, the MTA is exploring the viability of putting morning deadhead trains to Perryville in service to Aberdeen. MTA may also try to coordinate with Amtrak to take advantage of available capacity on its existing trains. MTA's long-term strategies include increasing mid-day and weekend service, and station and yard improvements. In addition, MTA is seeking a location for a new rail yard in the corridor.





Pedestrian Facilities

The term "pedestrian facilities" includes sidewalks, handicapped accessible ramps (ADA ramps), off-road paths, crosswalks, and pedestrian signals, all of which are components of a complete pedestrian network. The surrounding environment and the exposure to auto traffic, even where facilities are present, contribute to perceptions of safety and security experienced by pedestrians. In Aberdeen, as in other older cities, the conditions of pedestrian facilities differ from one area to another. Accessible facilities exist in some areas of Aberdeen, and in other areas pavement may be deteriorated and



crosswalks unavailable. As areas in the City develop or redevelop, the pedestrian activity and circulation patterns change. These factors give rise to regular needs assessments for pedestrian facilities. In some of the City's older residential areas partial sidewalks exist along one side of the street. Map 3 located on Pg. 4-17 presents the 2008 inventory of sidewalks completed by City staff. There are inconsistencies with sidewalks; for example, Plater and Custis have sidewalks but nearby Washington and Bonnett do not. For minor residential streets with low traffic volumes, it may be acceptable to not have a sidewalk. The gaps that exist in the pedestrian network on busier roads are to be filled in as maintenance is conducted or utility work undertaken. All pedestrian facilities are to be made fully accessible. This can mean adding intersection or driveway ramps, and relocating utility poles or other obstacles that interfere with the path of travel.

The need to designate safe pedestrian crossings will increase as traffic volumes on the roadway network and overall growth in Aberdeen increase. Already such facilities are needed along US 40. The absence of pedestrian facilities will deter some people from walking at all and will cause others to walk in the street or to cross at locations that are risky. The ability of children to walk to school is affected by the presence of adequate pedestrian facilities.⁵

According to current SHA policy, the recent roadway improvements on State routes have incorporated sidewalks, accessible ramps, and pedestrian crossings. Crosswalks have been installed along some sections of Aberdeen Thruway (MD 22) at I-95, along portions of Bel Air Avenue (MD 132) and along Paradise Road (MD 462). However, pedestrian facilities are notably absent along most portions of Philadelphia Boulevard (US 40) outside of the City center, and south of the City where major businesses are located. Sidewalks are not continuous,

⁵ In spring 2008, the City submitted an application for a Safe Routes to School grant to improve pedestrian facilities in the vicinity of the George D. Lisby School. The grant has been awarded.

⁶ SHA Accessibility Guidelines include a range of factors for consideration in determining the need for a crosswalk. In particular, need is assessed whenever there are a substantial number of pedestrian crossings per day =>150.





connections to the existing bus stops are absent, and designated crossings of US 40 are not provided. The frequent parking lot and driveway entrances along US 40 also create potential conflicts between pedestrians and motorists. Walking is considered a viable mode of transportation and an alternative to driving that promotes health and air quality. Historically, local jurisdictions have provided trails or off-road paths for recreation, such as those in Aberdeen's Festival Park. Off-road paths are typically separated from the roadway with a buffer and, if wide enough, they can be used by pedestrians, cyclists, and in-line skaters. In Aberdeen there are off-road paths such as these at local schools.

Opportunities: Perceptions of safety and security are also part of the pedestrian experience and help to determine the location and scale of facilities. When pedestrian facilities do not exist they are to be provided consistent with the recommended road typology. Sidewalk gaps and missing segments are to be provided as development or re-development occurs along a roadway, when roads are re-paved, or as part of a specific pedestrian facility improvement program. When utility work is undertaken, the City should assure that all opportunities to improve pedestrian facilities are taken. Utility poles should be moved out of pedestrian walkways if possible and no additional poles or equipment permitted.

Creating walkable places involves prioritizing the pedestrian experience in the earliest stages of the development process as roads are laid out, buildings located, and users identified. Well-designed, accessible pedestrian facilities and environments should be required in all new development areas through the Aberdeen Subdivision Regulations. Priority connections to bus stops, schools, parks, public facilities and retail areas, even those beyond the site, should be identified and provided. The City will explore State and Federal grant programs that provide funds for sidewalk retrofits in older areas.

Bicycling Facilities

The term "bicycle facility" typically refers to improvements made to accommodate or encourage bicycling. On-road improvements can include designated bike lanes, shared roadways, and bicycle route signage. Typically these improvements will be supported by shared-use paths and bicycle parking in destination areas. Designating particular routes helps guide cyclists to roads that are more suitable for their use and away from other roads that may be less accommodating. Markings also inform drivers to expect cyclists in



the travelway and can help to manage conflict areas.



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Currently, the only formal bicycle routes in Aberdeen are on State-maintained roads. Philadelphia Boulevard (US 40) in Aberdeen is designated by the SHA on the statewide bicycle map (Please refer to Map 4 located on Pg. 4-18). Bicycle route signs are posted and paved shoulders are marked with bike symbols. However, the downtown area's overly wide cross-section and intermittent driveways is confusing and potentially unsafe. The Transportation Element of the City's 2002 Comprehensive Plan identified the following as primary bicycle routes:

- Aberdeen Thruway (MD 22)
- West Bel Air Avenue (MD 132) from US 40 to Northeast Road
- Paradise Road (MD 462) from MD 22 to Robinhood Road

These bicycle routes have minimal markings and designation. The inventory conducted as part of the Maryland Department of Transportation's (MDOT) 2002 Bicycle and Pedestrian Plan identified needs for bicycle improvements along segments of US 40, MD 22, MD 132, MD 462, MD 7, and MD 715.

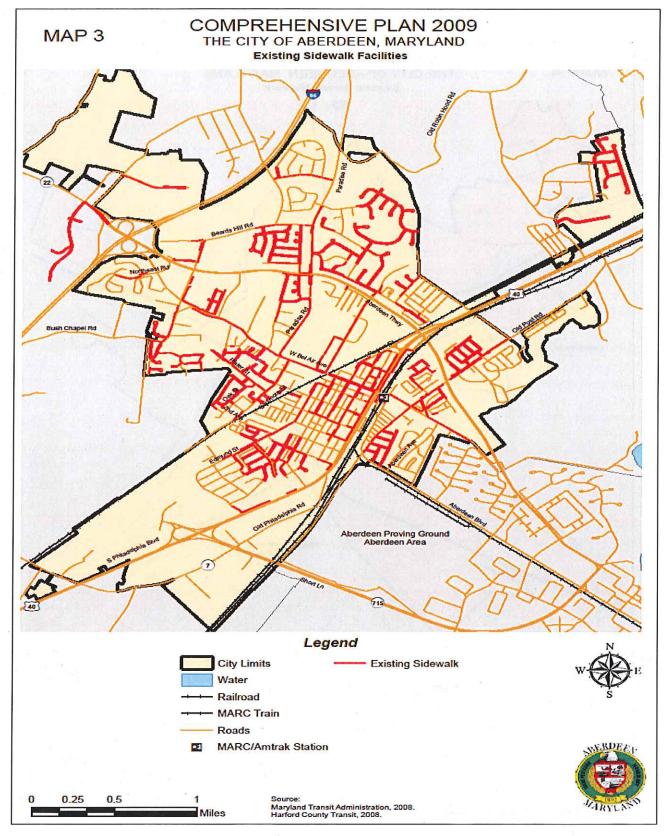
Opportunities: Promotion of bicycling supports City objectives for transportation, recreation, quality of life, and the environment. Interest is increasing in bicycling for the purposes of transportation, particularly where transit is present, and can be a major attractor for recreation and community building. Its accommodation is to be considered from all of these perspectives. A complete streets approach will include provisions for bicycling as routine accommodation rather than as an exception.

An assessment of existing arterial roads may reveal enough width to designate bikeways within the existing pavement. Simply adding striping can serve to re-allocate the space between motorists and cyclists. Where adequate pavement width does not exist and bicycle accommodation has been recommended, it may be necessary to pave shoulders, consider the use of "sharrows" (shared-use markings) or assess the potential for off-road bikeways.

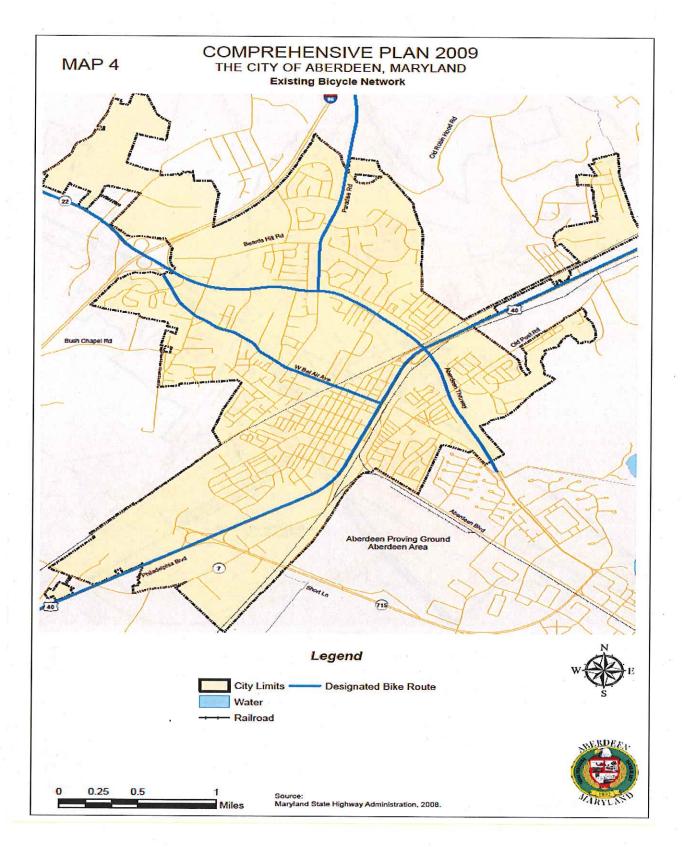
⁷ The needs of cyclists differ according to age and skill level, and a range of users should be considered in planning. Low-volume streets and designated bikeways are best for most cyclists. The striping and marking of lanes or shoulders as bikeways indicates to the motorist and the bicyclist the portion of the roadway intended for use by bicycles. Striping separates cyclists from motorists and helps to reduce confusion about where cyclists should operate. More experienced cyclists are comfortable riding with traffic but still need sufficient operating space. Wider lanes can accommodate these cyclists. Children most often ride on residential streets to neighborhood destinations, schools, and parks. Local streets with low traffic volumes and speeds do not require striping, but may warrant signage and be candidates for traffic calming that can also increase bicycle use. Bicycle route signs provide cyclists with information on designated routing. "Share the Road" signs help to increase motorist awareness of the presence of cyclists.















Traffic Assessment

Analysis of Existing Traffic

Existing traffic conditions were analyzed using the level-of-service (LOS) procedures stated in the 2000 *Highway Capacity Manual*⁸. LOS is a concept developed to quantify the degree of comfort afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various levels of service from "A" to "F".

As shown in Table 4-2, all of the existing signalized intersections operate at LOS C or better and below a 0.80 volume-to-capacity ratio in both the a.m. and p.m. peak hours. There are no major sources of congestion causing serious traffic concerns in existing conditions. Of all the facilities in Aberdeen, MD 22 experiences the highest traffic volume, though it continues to operate efficiently.

The BRAC Commission undertook a study to analyze the impacts to traffic operations that are anticipated based upon the effects of BRAC on APG, and to develop recommendations for transportation improvements that would allow operation at an acceptable level of service, LOS D or better, in 2015 and 2030. The study incorporated all development that may be expected to occur as a byproduct of BRAC at APG, such as additional employment for spouses and additional retail and development to support the increased population. The following scenarios were analyzed:

- Existing Conditions
- 2030 No-BRAC Conditions
- 2030 With BRAC with Aberdeen Gate. This is the gate at APG Road that is currently closed to traffic.
- 2030 With BRAC without Aberdeen Gate. This takes into account the BRAC growth but does not include use of the APG Road gate for traffic.

Table 4-3 illustrates the two-way traffic volumes for the p.m. peak hour under existing conditions and each of the 2030 scenarios. Appendix #1 includes a map that shows the Traffic Analysis Zones (TAZs) that were used in the development of the traffic forecasts.

⁸ Transportation Research Board. Highway Capacity Manual. 2000.



Table 4-3: PM Peak Hour Traffic Volume Comparison

	Se	gment	PM Peak Hour Two-Way Volumes					
·		7,2	t en	2030 Future Conditions				
Roadway	From	То	Existing Conditions	No BRAC	with BRAC	with BRAC (no APG Gate)		
MD 22	Paradise Rd	Philadelphia Blvd	2,595	3,605 (1.6%)	4,755 (3.5%)	5,655 (4.9%)		
US 40	Bel Air Ave	Aberdeen Thruway	1,940	2,745 (1.7%)	4,090 (4.6%)	4,205 (4.9%)		
MD 132	Paradise Rd	Philadelphia Blvd	1,125	1,810 (2.5%)	2,510 (5.1%)	2,105 (3.6%)		

(X%) - percent growth per year compared to existing conditions

The traffic growth shown in Table 4-3 is based on population and employment projections conducted as a part of the BRAC study. As a result, these projections are heavily influenced by the growth at APG (over 56% of the expected employment growth in Aberdeen and the surrounding planning areas is projected to occur within APG). Exactly how and when this growth will occur is largely unknown. As shown in Table 4-3, the anticipated two-way p.m. peak hour volumes indicate significant growth between the scenarios. However, that these volumes are traffic demand estimates do not reflect any adjustments for mode split or travel demand management efforts.

Specifically, corridor studies along MD 22 and US 40 would allow the City, Harford County, and SHA to proactively plan for future growth and accommodation of all travel modes and evaluate options for off-site parking and shuttle service as an alternative to road widening. Table 4-4 illustrates the results of the existing conditions, Level of Service (LOS), and volume-to-capacity (v/c) analysis from the BRAC study, assuming existing lane configurations are in place (no improvements).



Table 4-4: 2030 No-BRAC Conditions

		¥n	AM	PM		
Intersection	Control	LOS	V/C	LOS	V/C	
W Bel Air Ave (MD 132) / Beards Hill Rd (MD 132A)	Signal	F	1.09	F	1.73	
W Bel Air Ave (MD 132) / Paradise Rd (MD 462)	Signal	C	0.74	D	0.90	
W Bel Air Ave (MD 132)/ S Philadelphia Blvd (US 40)	Signal	С	0.78	D	0.87	
Aberdeen Thruway / I-95 SB Off Ramp	Signal	A	0.42	A	0.58	
Aberdeen Thruway / I-95 NB Off Ramp	Signal	A	0.32	С	0.76	
Aberdeen Thruway (MD 22)/ Beards Hill Rd (MD 132A)	Signal	С	0.79	F	1.02	
Aberdeen Thruway (MD 22)/ Paradise Rd (MD 462)	Signal	F	1.04	F	1.04	
Aberdeen Thruway (MD 22)/ Philadelphia Blvd On/Off Ramps	Signal	В	0.67	С	0.80	
Philadelphia Blvd (US 40) / Aberdeen Thruway On/Off Ramps	Signal	В	0.70	В	0.70	
Aberdeen Thruway (MD 22) / N Post Rd	Signal	Α	0.55	Е	0.92	
Short Ln (MD 715) / Philadelphia Blvd EB On Ramp	Signal	A	0.20	A	0.43	
Short Ln (MD 715) / Philadelphia Blvd WB On/Off Ramp	Signal	A	0.22	A	0.41	
Short Ln (MD 715) / Old Philadelphia Rd	Signal	В	0.70	В	0.69	



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As shown in Table 4-4, four intersections are projected to operate at LOS E or F during the p.m. peak hour in 2030. The West Bel Air Avenue/Beards Hill Road intersection is also estimated to have a demand far exceeding its capacity. The other three intersections (MD 22/MD 132A, MD 22/MD 462, and MD 22/Post Road) are estimated to operate just beyond capacity. Due to the nature of the planning-level analysis, there is an opportunity to mitigate these intersections with improved signal timing or other techniques that do not involve adding infrastructure. Table 4-5 illustrates the LOS and V/C results for 2030 with the BRAC scenario.

Table 4-5: 2030 with BRAC Traffic Conditions

	Contro	F	AM		PM
Intersection	1	LOS	V/C	LOS	V/C
W Bel Air Ave (MD 132) / Beards Hill Rd (MD 132A)	Signal	F	1.28	F	1.87
W Bel Air Ave (MD 132) / Paradise Rd (MD 462)	Signal	F	1.10	F	1.09
W Bel Air Ave (MD 132)/ S Philadelphia Blvd (US 40)	Signal	F	1.49	F	1.49
Aberdeen Thruway / I-95 SB Off Ramp	Signal	Α	0.60	A	0.67
Aberdeen Thruway / I-95 NB Off Ramp	Signal	В	0.64	C	0.94
Aberdeen Thruway (MD 22)/ Beards Hill Rd (MD 132A)	Signal	F	1.15	F	1.38
Aberdeen Thruway (MD 22)/ Paradise Rd (MD 462)	Signal	F	1.72	F	1.42
Aberdeen Thruway (MD 22)/ Philadelphia Blvd On/Off Ramps	Signal	F	1.17	F	1.18
Philadelphia Blvd (US 40) / Aberdeen Thruway On/Off Ramps	Signal	F	1.02	F	1.08
Aberdeen Thruway (MD 22) / N Post Rd	Signal	F	1.21	F	1.64
Short Ln (MD 715) / Philadelphia Blvd EB On Ramp	Signal	Α	0.63	F	1.09
Short Ln (MD 715) / Philadelphia Blvd WB On/Off Ramp	Signal	В	0.65	F	1.05
Short Ln (MD 715) / Old Philadelphia Rd	Signal	F	1.94	F	1.69



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Table 4-5 indicates that, with the potential growth at APG from BRAC, most of the signalized intersections will operate at LOS F and over capacity during both the a.m. and p.m. peak hours. The corridors that would experience the greatest congestion are MD 22 and US 40, as they serve primary routes to commuters at APG. Capacity improvements and travel demand management programs will be necessary to allow these facilities to operate acceptably. Table 4-6 illustrates the 2030 growth with BRAC and without the Aberdeen Gate being opened to traffic.

Table 4-6: 2030 with BRAC Traffic Conditions (without Aberdeen Gate)

		I	AM	P	M
Intersection	Control	LOS	V/C	LOS	V/C
W Bel Air Ave (MD 132) / Beards Hill Rd (MD 132A)	Signal	F	1.09	F	1.81
W Bel Air Ave (MD 132) / Paradise Rd (MD 462)	Signal	С	0.80	F	1.04
W Bel Air Ave (MD 132)/ S Philadelphia Blvd (US 40)	Signal	F	1.03	F	1.17
Aberdeen Thruway / I-95 SB Off Ramp	Signal	Sel Le f	No	Change	
Aberdeen Thruway / I-95 NB Off Ramp	Signal	PT AND	No	Change	
Aberdeen Thruway (MD 22)/ Beards Hill Rd (MD 132A)	Signal	F	1.25	F	1.40
Aberdeen Thruway (MD 22)/ Paradise Rd (MD 462)	Signal	F	1.86	F	1.51
Aberdeen Thruway (MD 22)/ Philadelphia Blvd On/Off Ramps	Signal	F	1.42	F	1.32
Philadelphia Blvd (US 40) / Aberdeen Thruway On/Off Ramps	Signal	Е	0.95	F	1.17
Aberdeen Thruway (MD 22) / N Post Rd	Signal	F	1.48	F	1.88
Short Ln (MD 715) / Philadelphia Blvd EB On Ramp	Signal	1	No	Change	
Short Ln (MD 715) / Philadelphia Blvd WB On/Off Ramp	Signal	, 1 :	No	Change	V
Short Ln (MD 715) / Old Philadelphia Rd	Signal		No	Change	

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As shown in Table 4-6, traffic operations without the Aberdeen Gate are similar to those with the gate (shown in Table 4-5). While some intersections will experience even greater delay and traffic demand, the challenges remain the same. Increasing capacity and instituting transportation demand programs will be necessary in either scenario.

Transportation Recommendations

Roadway Classification

Purpose - Roadway facilities are classified according to the relative importance of the mobility and access functions they are intended to provide for motorists. More vehicular access to land uses along a roadway generally reduces efficiency and, conversely, more efficiency results when vehicular access is more concentrated to fewer points. Assigning a functional classification is a broad strategy to identify the priority function for the roadway to provide motorists with more efficiency or more direct access to property. A deficiency of the functional classification rating criteria is the assumption that the motor vehicle is the only user of the roadway. The functional classification system is however very useful as a necessary first step to understanding the road network as a framework for transportation in Aberdeen.

Functional classification creates a hierarchy for automobile movements on roadways within a jurisdiction and is best presented on a highway network map (Refer to Map 5 located on Pg. 4-27). The network map allows for a visual assessment of the access to and circulation within each area of the City. With adequate connectivity, traffic flows are evenly disbursed through a network and streets are receiving the types of traffic that they are designed to handle. If adequate connectivity is not provided, automobile traffic is point loaded at certain intersections and on fewer streets, resulting in congestion and/or larger, more complicated intersections and wider streets. Poor connectivity can also encourage out-of-direction travel, which is particularly inconvenient for cyclists and pedestrians. Also, incidents and temporary street closures exacerbate congestion in a network that lacks sufficient connectivity.

Since a roadway functional classification system alone does not address the range of uses for the roadway, a second level of classification is needed to consider the circulation and access needs for efficient transit service, safe and convenient bicycling, and comfortable pedestrian trips. Street typologies are a way to characterize roadways within the context of the adjacent land uses and in consideration of all transportation functions they are intended to serve. An example of a typology is a local street that



allows the greatest driveway access also being typed as a neighborhood street that recognizes the priority for children walking from home to a nearby elementary school.



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The current classification system and typologies in the Transportation Element of the Plan will be consistent with the street types and right-of-way widths discussed in all of the City's implementation documents, such as the Subdivision Regulations and Site Plan Requirements of the Aberdeen Development Code. Together, the functional classification system and street typology will guide mobility planning and serve as the basis for the City's road design standards. Consistency between the plan and the implementation tools will help the City to establish clear priorities for mobility needs and for the allocation of funds for improvements and maintenance. The functional roadway classifications as defined in Harford County's 2010 Transportation Element Plan are provided below.

Freeway/Expressway - A divided highway, with either full control of access on which all crossroads and railroads are grade separated. All entrance and exit maneuvers are by way of interchange ramps, or partial control of access where a great distance between the intersections is provided and no direct access to abutting land between major intersections is allowed. Design speeds are lower or similar to interstate systems, but are generally higher than arterial highways.

Principal Urban Arterial - Links major centers of activity of a metropolitan area. Its primary function is for mobility and carries a high proportion of total trips entering, exiting or passing through an urbanized area. It is not intended to provide direct access to individual properties along its path, and such service should be purely incidental to the primary function of the road for use of through traffic.

Minor Urban Arterial - Interconnects with and augments the Principal Urban Arterial. It provides a lower level of travel and trip lengths as compared to a Principal Arterial and it serves intracommunity continuity. Spacing between Minor Urban Arterials varies from 1/8 to 1/2 miles in the central business district to 2 to 3 miles in the suburban areas. Although mobility is the primary function of this type of arterial system, it may provide limited access to major community centers along its path.

Urban Collector - Provides both access to abutting land and circulation within neighborhoods and business areas. It serves residential, commercial, and industrial areas by collecting and distributing motorists from local streets and channelizing them onto arterials for reaching their final destination. The amount of access provided to abutting land is important and the length of a collector street is typically 2 to 3 miles.

Principal Rural Arterial – Serves trips of substantial length such as statewide or interstate travel; connects urban areas of 50,000 or more; and provides an integrated network without stub connections except where unusual geographic conditions exist, such as international boundary connections.

add definitions

4-25



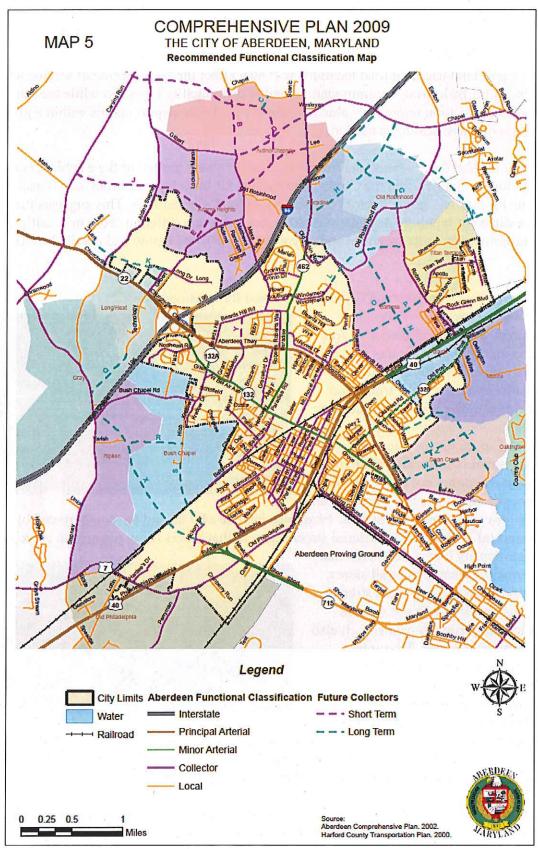
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<u>Minor Rural Arterial</u> - This roadway works in conjunction with Principal Rural Arterials and forms a network of rural roads that links cities, towns, and other major activity centers; serves the populated rural areas of the state; and provides mobility in the areas with minimal interference to through traffic.

Major Rural Collector - Provides service to towns that are not served by Principal Arterials.

Minor Rural Collector - Provides access and service to neighborhoods and direct access to residential, commercial, and industrial land uses.





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Street Typologies

Fully addressing mobility needs requires that adjacent land use characteristics be taken into account. These land uses and road locations will also affect the types of transit service levels present, need for pedestrian accommodation, and bicycle facility types. So while the traditional functional classification organizes vehicular routes by other transport modes within a given area, a finer grain of classification is needed.

Refinement of Aberdeen's functional roadway classifications has led to the establishment of street typologies that describe the City's expectations for bicycle, pedestrian, and transit provisions for arterials and collectors in a variety of land uses settings. This suggests that a street may have different typology designations as it moves through different areas or is critical to a bicycle or transit network. Proposed street typologies are listed below and detailed on Table 4-7.

Arterial Streets

The following four arterial street types are proposed for consideration:

1. Regional Connector - This is an arterial street with a combination of freeflow ramp and signalized points of access. It primarily provides mobility through Aberdeen for motor vehicle, truck, and commuter bus traffic, as well as/access to major destinations within Aberdeen. Provision of space for bicycle and pedestrian travel is secondary/to motor vehicle movement but not optional, and the design should emphasize frequent, safe



crossings for cyclists and pedestrians. Examples include MD 22 and the southern end of US 40.

2. Commercial Primary – An arterial street segment that serves (or is planned to serve) a lowor medium-density commercial area that may be equally oriented to retail stores, service, and industrial use. This street emphasizes transit and motor vehicle travel, including truck movements. It also facilitates bicycle access. Examples include Hickory Drive and MD 7.

3. Village Center Mixed Use – An arterial street segment/that serves a compact mixed-use area that is fronted by



(or planned to be fronted by) a variety of commercial, institutional, government, and/or residential uses. The street design emphasizes pedestrian, transit, and bicycle travel with adequate facilities provided within the street right-of-way. An example of this is US 40 near the rail station.

4. Residential – An arterial street that serves and traverses a primarily residential neighborhood and is fronted by (or planned to be fronted by) residential, park, or institutional property. This

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street's design emphasizes bicycle and pedestrian travel, local motor vehicle travel, and transit access. An example is Paradise Road.

Collector Streets

Village Center Streets

Village Center Streets are collector or local streets located in a medium or high-density residential, commercial, or mixed-use area. These streets, often called side streets, may include street level shops, but do not have the same level of pedestrian and vehicular activity as arterial streets. In some locations, these streets provide service, utility, and emergency vehicle access to alleys, loading docks, and building service areas for loading and



unloading goods, recyclables, and refuse. Access to the street system from off-street and garage parking may also be located on Village Center Streets. Sidewalks, landscaping, and furnishings are provided on the streets, but they are at a reduced scale when compared with arterial streets. Typically, such streets will have one 10- or 11-foot-wide travel lane per direction, plus on-street parking. Special bicycle facilities and bus service are typically not needed but can be added as space allows and demand supports. In some locations, these streets allow motorists to avoid using arterials for short trips in the same corridor. These streets may provide pedestrians and cyclists a quieter alternative to arterial traffic. Village Center Streets have a posted speed limit of 25 mph and are eligible for traffic calming measures should a significant speeding problem be identified on them. Examples include Parke Street and West Bel Air Avenue.

Neighborhood Principal Streets

Neighborhood Principal Streets occur in lower-density residential areas and provide access for fronting properties and links to adjacent streets. Neighborhood Principal Streets have two travel lanes, can vary from 28 to 36 feet in width, and have posted speed limits of 25 mph. Like Village Center Streets, they provide a way



for travel to and from home, connections to local resources, and a shared space in the neighborhood for walking, biking, talking with neighbors, and conducting everyday activities. On-street parking is a priority but is regulated according to need and space availability. It may be provided on one or both sides, or not at all, based on each street's conditions. Marked bicycle lanes may be provided, however, most often cyclists would share the travelway with motor vehicles. Neighborhood Principal Streets can be converted into Bicycle Boulevards, which prioritize bicycle traffic and discourage non-local, vehicular, cut-through traffic. Auto accommodations focus on access and local uses, so low speeds are required. Transit services are



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usually provided by small buses and paratransit vans or cabs. Examples include Roberts Way, Kretlow Drive, Middelton Lane, and Edmund Street.

Neighborhood Minor Streets

Neighborhood Minor Streets occur in low- and medium-density residential areas. These streets are very similar to Neighborhood Principal Streets in form and function. The distinctive feature of these streets is their nearly exclusive orientation to providing access to residences. Since residential streets have low traffic volumes with infrequent travel by large vehicles, all users other than pedestrians can be accommodated within a relatively narrow travelway. On-street parking is usually provided, and sidewalks are needed along at least one side. Minor Streets place the highest transportation priority on pedestrian, bicyclist, and local motor vehicle access.

Because emergency vehicles and school buses are often routed on Neighborhood Principal and Minor Streets, the streets also must allow for the safe operation of these larger vehicles. Social use of Minor Streets for community gatherings and other functions is accommodated and encouraged. A concept for shared use could be considered for some of these local streets.



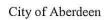




Table 4-7: Proposed Street Types

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Street Type	Travel Lanes	Median Priority	Target Speed (mph)	Transit Service	Bicycle Facilities	Limit Driveway Access	Parking Priority	Pedestrian Way
	0			Arteria	1 Streets			20 V
Regional Connector	4-6	High	35- 45	Limited	Shared- use trail or paved shoulder	Yes	None	6 ft. sidewalk or 10 ft. shared-use path plus 6+ ft. landscape strip
Commercial Primary	4 + turning	Medium	n 30	Frequent	Bike lane	No	Low	6-8 ft. sidewalk plus 6 ft. landscape zone
Village Center Mixed Use	2-4	None	20-25	Frequent	Bike lane/ shared lane	Yes	High	6-12 ft. sidewalk plus 6 ft. landscape zone
Residential	2-4	Medium	25-30	Moderate	Bike lane/ shared lane	No	Medi um	6-8 ft. sidewalk plus 5-6.5 ft. landscape strip
1. 1. 4. X.	_ **			Collecto	r Streets			
Village Center Local	2	Low	20-25	Limited	Bike lane/ shared lane	No	High	6-8 ft. sidewalk plus 2.5-6 ft. landscape strip
Neighborhood Principal or Minor	2	Low/N one	20-25	Limited	Shared lane	No	Medi um	4-5 ft. sidewalk plus 2.5-4.5 ft. landscape strip





Proposed Road Improvements

Table 4-8 identifies significant changes in classification that are recommended to support the City's Comprehensive Plan.

Table 4-8: Proposed Functional Classification Changes

* * Y	Li	mits	Functional Class		
Roadway	From	То	Existing		
Aberdeen Thruway (MD 22)	I-95	APG Gate	Freeway/Expressway	Proposed Rrincipal (Control Arterial A	
Beards Hill Road	MD 22	MD 462	Local	-Collector C	
Gilbert Road Lorg Onin	tong Di	Aldino Stepney Rd	Future Local	Collector	
Maxa Road	Gilbert Dr	Beards Hill Rd	Local	Collector	
Aldino Stepney Road	MD 22	MD 15 / 5	Local	Collector	
Plater Street	West terminus	Baltimore St	Local	Collector ()	
Old Post Road	East Bel Air,St Avenue	US 40 AMARIZA	Local	Minor Who	
Old Robin Hood Road	Paradise Rd	Robin Hood Rd	Local	Collector	
Old Philadelphia Road	US 40	US 40	Local	Collector	

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Transit Improvement Plans

Rail Station

Aberdeen, Harford County, and MDOT have completed a station-area transit needs assessment and market analysis. The assessment has provided an array of improvements that would be needed to establish a multimodal transit center in Aberdeen. The assessment included an analysis of BRAC-related growth, and a determination of the potential for transit to play a greater role in meeting the transportation demands of new residents and employees. The study also analyzed the market opportunity for transit-oriented development around the multimodal transit center.

The existing rail station is within Aberdeen's downtown revitalization district. The transit needs study indicated that the existing station area can accommodate a multimodal transit center. The implementation of this type of project will take several years and will likely require the City to acquire land and put zoning in place to allow mixed-use, transit-oriented development. The City would also need to work with MDOT and Amtrak to find funding for development of the transit center.

Map 6 found on Page 4-34 shows future transit improvements for Aberdeen, including additional bus routes to APG, a transit center, and a park-and-ride facility.

Aberdeen will support short-term improvements at the existing station that promote its viability as a multimodal hub, including expansion of commuter parking by MTA, provision of bike racks, and local taxi information at the station. The City will work with HCTS to coordinate bus schedules with train arrival times. HCTS and MTA bus schedules will be made available at the station and at other locations within Aberdeen. Added MARC service between Washington D.C. and Delaware is also planned. This service improvement would utilize Aberdeen's rail station.

Bus Service

A long-term strategy for bus service improvements will be strongly influenced by the establishment of a multimodal transit center. Optimally, timed transfers between services will contribute to the center's success as a multimodal hub. Shuttles from APG and services linking new development areas will be part of the mix of services available.

Aberdeen has a pivotal role in advocating for a shuttle service into APG. A shuttle from the existing park-and-ride lot or a new commuter parking facility near I-95 could help to reduce the traffic on MD 22 and, with other transportation system management measures, could reduce the need for widening. People are generally more willing to take advantage of transit as an alternative when they have a major change occurring, such as a new job or new home. This suggests that the shuttle will be operating when the majority of new BRAC employees arrive.









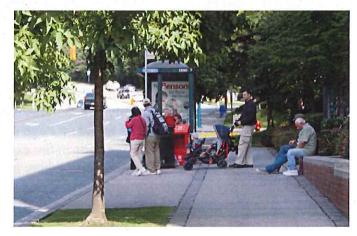
Promotions and advertising will explain the Federal tax advantages available to commuters who take transit or vanpools, and APG will be encouraged to promote employee and contractor use of the shuttle. Aberdeen is considered to be within the Washington Region for Federal employees. Over the next several years, until the transit center is established, the City will work with HCTS on route modifications to help improve on-time performance. The City will include references to the accommodation of existing and future bus stops in the requirements for Subdivision and Site Plan review. Bus operations and pedestrian access to bus stops is considered in the review of site plans.

The City will work with HCTS to assure that pedestrian accommodations are provided at all bus stops. Considerations in bus-stop placement include safety, proximity to intersections and traffic signals, ADA compliance, and visibility. Rider convenience is also important. There are MTA bus stop spacing guidelines for urban, suburban, and rural settings that can serve as a guide. ¹⁰

The City will encourage transit use as a matter of public policy. Businesses within Aberdeen will be encouraged to provide transit information to employees.

Pedestrian Improvement Plans

Aberdeen is faced with a number of physical barriers that present challenges to circulation. In particular, pedestrian circulation is hindered by the rail line and station facility, I-95, and APG. Because of its width, traffic speeds, and the lack of designated crossings, Philadelphia Boulevard is a barrier for many pedestrians. The Aberdeen Thruway (MD 22) has become a barrier since it can only be crossed in designated places due to the median and the volume and speed of traffic. As traffic increases on MD 22 it



will become more of a barrier. For community cohesion, it is important to reduce or minimize barriers to mobility. Where barriers cannot be eliminated, safe, visible pedestrian crossings must be provided.

⁹ Section 132 of the Internal Revenue Code and Title 26 of the US Code allows employers to give their workers up to \$230 each month for transit or vanpool commuting costs as a tax-free benefit. It also allows employers to give employees the option to use payroll deductions to avoid paying taxes on up to \$230 a month in commuting costs. Alternatively, employers can share these costs with their workers by paying part of their monthly commuting costs and letting workers pay the balance using pre-tax dollars. Either way, both employers and their employees can save money by participating in this simple plan.

Maryland Transit Guidelines May 2002



City of Aberdeen

The recommended street typologies serve as a guide for the pedestrian accommodations to be provided. In areas where pedestrian activity should be expected or is to be encouraged, the sidewalks should be wider and landscaping provided to create a pleasant walking environment.

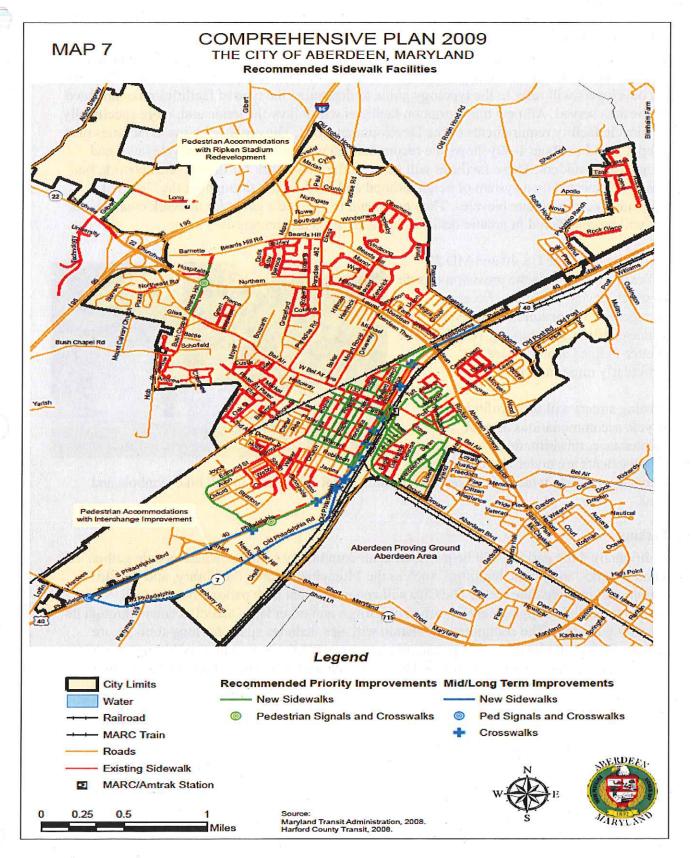
New buildings should be oriented to the street with no blank walls. Parking impacts on the pedestrian environment, with driveways and surface lots at the street edge, should be avoided. The specific sidewalk design requirements for newly developing areas are provided in the Development Code. Existing streets should be retrofitted with sidewalks and crosswalks as needed when road maintenance, rehabilitation, or other public improvements are undertaken. The City's inventory of sidewalks provides information on gaps in the existing network. Additionally, there are many areas where accessible ramps and crosswalks are needed. The City must prioritize facility needs and establish an annual pedestrian facility improvement program. One approach often taken is to establish pedestrian priority zones wherein City efforts would be targeted for a period of time. The outcomes will be more noticeable and encourage public support for further improvements in other areas.

State policy now requires that the SHA address pedestrian needs as part of routine road maintenance and improvements. A joint corridor study for Philadelphia Boulevard has been recommended to assure that local concerns are taken into account as improvements are made. When the SHA and the City conduct the study for improving Philadelphia Boulevard, the focus will be to make a "complete street," which means including plans for providing sidewalks, designated pedestrian crossings with pedestrian signals, improved bicycle access, and well-designed transit stops. (This type of corridor study is recommended in the Plan.)

As areas are annexed and development occurs, it will be important to assure that pedestrian connections are made to existing City streets. This will prevent additional barriers to pedestrian mobility from being created. Map 7 found on Page 4-37 identifies priority areas for pedestrian improvements based on the identified gaps in the existing sidewalk network, the areas where transit service is provided, and the locations where land uses already generate pedestrian activity that should be safely accommodated.







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Bicycle Network Plan

On-Street Bicycle Network

Bicycle improvements are needed throughout Aberdeen and its planning areas to establish a complete network. The means by which the improvements are implemented will vary. City staff and developers will refer to the typology guide to determine the type of facilities recommended for the area served. All new transportation facilities will follow the guide and, more specifically, the bicycle facility requirements of the Development Code. The proposed bicycle facilities map (Map 8 found on Page 4-40) shows the recommended network of on-road bicycle lanes and designated shoulders. These facilities will serve as the framework for the bicycle network, but must be connected by a system of neighborhood and local streets throughout the City that adequately accommodate bicycles. They are meant to provide a guide for network connections that will be considered in greater detail in sub-area plans and proposals.

Corridor studies for US 40 and MD 22 will expressly include the provision of safe on-street bicycle facilities. Access management to consolidate driveways and reduce conflicts with turning vehicles, and a better-defined shared space are particularly important on US40.

Existing streets will be retrofitted with bicycle accommodations as road maintenance, rehabilitation, or improvements are undertaken. It will be



necessary to create wide outside lanes on existing local streets and install bike symbols and signs.

Bicycle Parking

Additionally, bike parking will be provided at all community facilities where people gather. All schools, parks, and public buildings, such as the Municipal Center, the library, and the rail station, will provide bike racks. The City will encourage that bike parking be provided downtown and at shopping centers, office buildings, and other large activity centers through its permitting process. The commuter rail station will also dedicate space for long-term secure parking. This could be lockers or potentially a "manned" bike station that could improve "eyes on the street" in the station area. It could be combined with a bicycle retailer or cooperative.

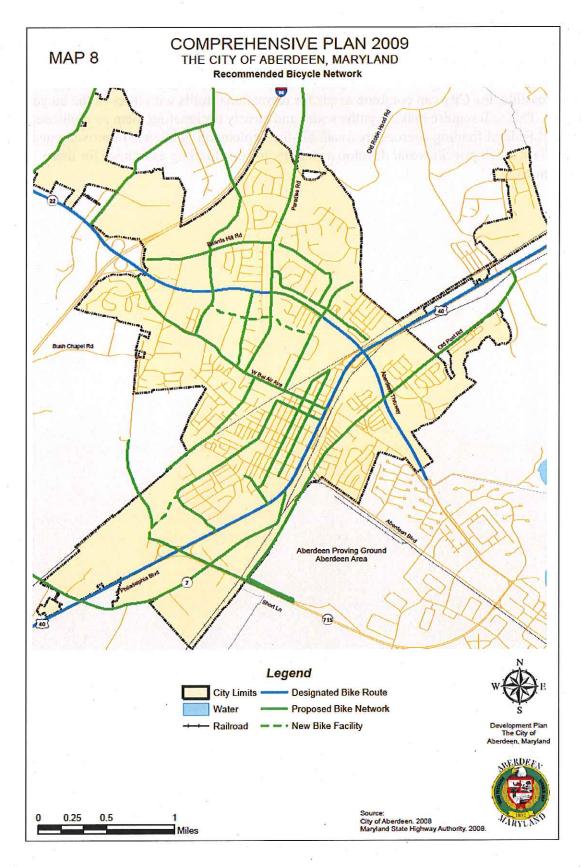




Hiker/Biker Paths

The off-road components of the Planned Bicycle Facilities map identify segments that could be widened to serve as multi-use trails. When such facilities connect parks and playgrounds or open spaces, they are often suitable for hiking, skating, or skateboarding as well as for bicycling. Where feasible, the City can combine needs for recreational trails with links in the bicycle network. This will require making paths wider and clearly designating them as multiuse trails. State and Federal funding sources are available for implementing bicycle improvements. The City will establish priorities and develop a strategy to seek funding assistance for these improvements.





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Thoroughfare Plan

Map 9 found on Page 4-42 provides the Thoroughfare Plan and shows the long-range roadway improvements needed to support the development/re-development in Aberdeen and the planning areas considered for growth. The map also shows proposed new roadway links and significant changes to existing roadways recommended to support the City's growth plan.

In addition, the plan includes Map 10 found on Page 4-43 showing short-term and Map 11 found on Page 4-44 showing mid-term transportation improvements. Two corridor studies are included among the recommendations to evaluate opportunities and impacts of potential roadway widening to accommodate anticipated BRAC traffic.

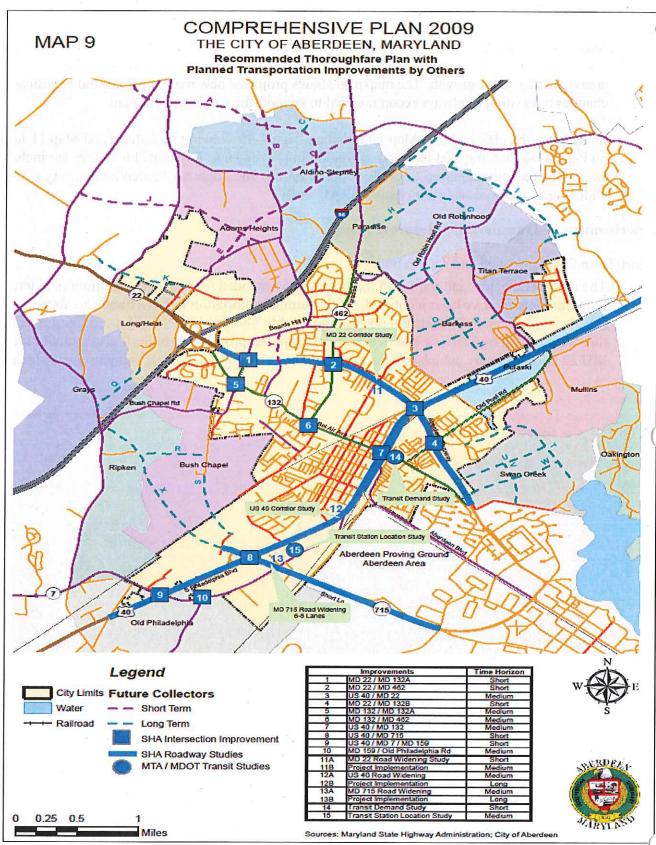
Prioritization of Transportation Improvements

Short-Term Plan (approved and not yet built)

The limits of the new and improved roadways recommended for the short-, medium- and long-term time frames have been identified. Short-term transportation improvements are those that have been included in budgets but not yet built. Table 4-9 identifies the short-term improvements that are intended by SHA, or by developers as proposed projects are built. It also includes the MD 22 corridor study, which will be completed before long-range improvements are designed.

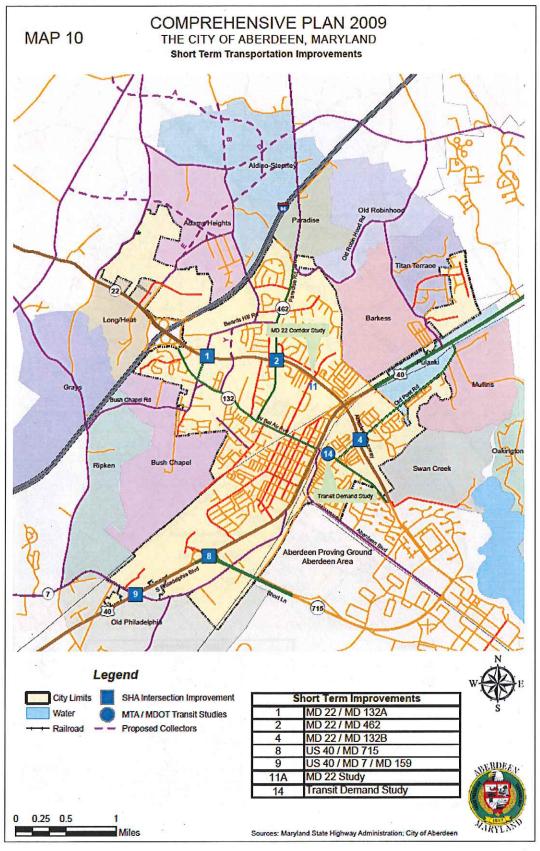














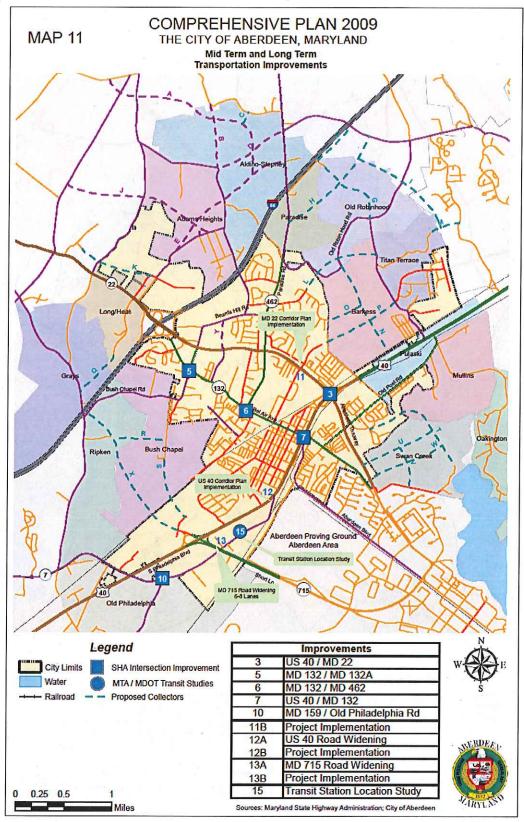




Table 4-9: Short-Term Transportation Improvements (2009-2015)

Map Reference Number	Existing Location or proposed limits	Implementing Agency/Entity	Description	
1	Aberdeen Thruway (MD 22)/ Beards Hill Road (MD 132A)	SHA	Add left turn lanes to each approach; thru lanes on MD 22	
2	Aberdeen Thruway (MD 22)/ Paradise Road (MD 462)	SHA	Add northbound right-turn lane, 2 southbound left-turn lanes, and thru lanes on MD 22	
4	Aberdeen Thruway (MD 22)/ Old Post Road (MD 132B)	SHA	Extend turn lane pockets on MD 132B, add thru lanes on MD 22	
8	Philadelphia Boulevard (US 40)/ Short Lane (MD 715)	SHA	Add thru and turn lanes to US 40 eastbound on- and off-ramps, thru lanes to MD 715	
9	Philadelphia Boulevard (US 40)/ Philadelphia Road (MD 7)/ Old Philadelphia Road (MD 159)	SHA	Add turn lanes to MD 7 and MD 159, two thru lanes in each direction to US 40	
11A	Aberdeen Thruway (MD 22)	SHA/City of Aberdeen	Corridor Study between I-95 and APG	
14	Existing Aberdeen Rail Station @ Philadelphia Road (US 40)/ W Bel Air Avenue (MD 132)	MDOT	Study feasibility and implementation of transit center	
A	From Carsins Run Road to Road E	Developer(s)	New collector roadway to accommodate planned development	
В	From Chapel Road to Gilbert Road	Developer(s)	New collector roadway to accommodate planned development	
D	From Gilbert Road to Paradise Road/Chapel Road	Developer(s)	New collector roadway to accommodate development	
Е	From Gilbert Rd/Adams Rd to Paradise Rd/Lee Rd	Developer(s)	New collector roadway to accommodate development	
J	From Carsins Run Rd to Gilbert Rd/Adams Road	Developer(s)	New collector roadway to accommodate development	
Y	Extend Middleton Rd from Aberdeen Thruway (MD 22) to Beards Hill Rd	SHA/City of Aberdeen/ Developer(s)	Extension of existing collector to accommodate development	

The transportation improvements identified in Table 4-9 are illustrated in Map 10 found on Page 4-43.





Mid-Range Plan (2020)

Table 4-10 identifies mid-range transportation projects and improvements that, based on expected growth and development, will be needed by 2020.

Table 4-10: Mid-Range Transportation Improvements (2015-2020)

Map Reference Number	Existing Location or Proposed Limits	Implementing Agency/Entity	Description
3	Aberdeen Thruway (MD 22)/ Philadelphia Road (US 40)	SHA	Increase interchange capacity
5	W Bel Air Avenue (MD 132)/ Beards Hill Road (MD 132A)	SHA	Increase intersection capacity
6	W Bel Air Avenue (MD 132)/ Paradise Road (MD 462)	SHA	Increase intersection capacity
7	Philadelphia Road (US 40)/ W Bel Air Avenue (MD 132)	SHA	Increase intersection capacity
10	Perryman Road (MD 159)/ Old Philadelphia Road	SHA	Increase intersection capacity
11B	Aberdeen Thruway (MD 22)	SHA	Implement findings of Corridor Study
12A	Philadelphia Road (US 40)	SHA	Corridor Study between Robin Hood Road and MD 7
13A	Short Lane (MD 715)	SHA	Corridor Study between US 40 and APG Gate
15	Existing MARC/Amtrak Rail Station	MDOT/MTA/Amtrak City of Aberdeen	Implementation of transit center improvements including plans for mixed use Transit Oriented Development (TOD)

Long-Range Plan (2030)

Table 4-11 identifies long-range transportation projects needed to support the growth and development anticipated in this comprehensive plan by 2030. These are improvements that will provide access to newly developing or redeveloping areas as well as widening and changes to access on the existing transportation network.





Table 4-11: Long-Term Transportation Improvements (after 2020)

Map Reference Number	Existing Location or Proposed Limits	Implementing Agency/Entity	Description
12B	Philadelphia Road (US 40)	SHA	Implement findings of Corridor Study
13 B	Short Lane (MD 715)	SHA	Implement findings of Corridor Study
C	From "A" to Chapel Road	Developer(s)	New collector roadway to accommodate development
F	From Frontage Road to Chapel Road	Developer(s)	New collector roadway to accommodate development
G	From Frontage Road to Robin Hood Road	Developer(s)	New collector roadway to accommodate development
H	From Paradise Road to Chapel Road	Developer(s)	New collector roadway to accommodate development
I	From "H" to "M"	Developer(s)	New collector roadway to accommodate development
K	From Lark Drive to Long Drive	Developer(s)	New collector roadway to accommodate development
L	From Old Robinhood Road to Robin Hood Rd /Sherwood Lane	Developer(s)	New collector roadway to accommodate development
M	From Sherwood Lane to Blenhiem Lane	Developer(s)	New collector roadway to accommodate development
N	From Old Robin Hood Road to CSX Rail line	Developer(s)	New collector roadway to accommodate development
O 0	From Grasmere Drive to "N"	Developer(s)	New collector roadway to accommodate development
Р	From Mt Royal Avenue to Robin Hood Road	Developer(s)	New collector roadway to accommodate development
Q	From Stepney Road to Technology Drive	Developer(s)	New collector roadway to accommodate development
R	From Hiob Lane to "X"	Developer(s)	New collector roadway to accommodate development
S	From Hiob Lane to Hickory Drive	Developer(s)	New collector roadway to accommodate development





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Т	From Michael Lane to Richard's Lane	Developer(s)	New collector roadway to accommodate development
U	From Aberdeen Thruway (MD 22) to "T"	Developer(s)	New collector roadway to accommodate development
V	From "U" to Richard's Lane	Developer(s)	New collector roadway to accommodate development
W	From Aberdeen Thruway (MD 22) to "T"	Developer(s)	New collector roadway to accommodate development
X	Extend MD 715 to Yarish Lane	Developer(s)	New collector roadway to accommodate development

The improvements identified in Table 4-11 are illustrated in Map 11 found on Page 4-44, the Mid Term and Long Term Transportation Improvements.





Recommended Actions for Implementation

Improved City coordination with Harford County

Currently, BRAC-focused update meetings are held with State, City, and County staff. Similar meetings on a broader range of transportation issues are recommended between the City and County on a quarterly basis to coordinate and share information on transportation plans and the status of transportation projects to be implemented.

Improved City coordination with MTA

It is important for the City to be informed about the status of MTA initiatives on the rail station, commuter bus services, MARC service improvements, MARC maintenance facility, and any other future initiatives. The City should request that MTA provide bi-monthly updates in person or by conference call with all relevant agency staff involved.

City Policy

The City's Downtown Re-development Strategy should endorse (by reference) specific transportation objectives and policies from this plan.

The Aberdeen Development Code and Subdivision Regulations should be revised to be consistent with this chapter. Specific recommendations on roadway classification, road typologies and provision of transit, bicycle, and pedestrian facilities are specifically important.



For the station area, the City will also need to address transit-friendly parking policy and regulation.

The City should adopt Traffic Impact Study guidelines and put in place a formal scoping and review process that includes access and circulation for all modes. Consideration should be given to implementing a Traffic Impact Fee at the building permit stage (in lieu of conditioning off-site improvements) to collect fees from private development that fund system-wide transportation improvements.

Downtown Revitalization Strategy

The City should be certain that its strategies for the Revitalization Overlay District and the Enterprise Zone support the intent of the Comprehensive Plan, including areas designated for transit-oriented development.

Additional Studies needed

• Joint City, Harford County, and SHA corridor study for MD 22 from I-95 to APG gate.

There are several SHA highway improvements proposed as BRAC initiatives within the City in the design phase. SHA project managers should be requested to provide City



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officials with project updates at each phase. The City should carefully consider the proposed improvements within the context of the Comprehensive Plan recommendations and provide written comments to SHA so that City concerns and priorities can be taken into account by SHA.

Several intersection improvements are currently proposed by SHA for MD 22 in Aberdeen. The potential improvements to address forecasted traffic demand on MD 22 could conflict with the City's transportation objectives for that route. The City, Harford County, and SHA should pursue a comprehensive corridor study for MD 22 to identify and evaluate options to roadway widening, including transportation system management (TSM) and transportation demand management (TDM)¹¹ measures. The corridor study should engage stakeholders from the community as well as from APG to balance the competing needs for mobility and accessibility.

• US 40 corridor study within the boundaries of the City's planning areas to determine how to accommodate traffic while meeting the City's goal for providing an integrated transportation system and promoting complete streets and compatible re-development.

Regulatory Revisions

The Subdivision Regulations and the Development Code should be consistent with the recommendations in the Comprehensive Plan to ensure consistency with the Transportation Element.

Functional Classifications, road typologies and road design standards must be consistent with the plan; otherwise, it will be difficult to achieve plan objectives. The City may need to update the Development Code and provisions of the Revitalization Overlay District to allow



for compact mixed-use development typical of a transit-oriented development. The City may also want to review building setbacks, parking policy, and other requirements to be sure they are not inconsistent with the intent to create environments that encourage pedestrian, transit, and bicycle options.

¹¹ TSM and TDM are techniques that improve safety and mobility without widening streets. Examples of TSM techniques include signal timing, traveler information, access management, changes in allocation of user space through road markings, etc. Examples of TDM include increasing traveler incentives and awareness of transit and bicycling options.





Measures of Progress

The City should review its progress toward meeting the transportation system objectives regularly. A bi-annual report should be prepared for elected officials and the public on transportation projects implemented, policies enacted or amended, and strategies assessed or undertaken to meet transportation system objectives. This report will help City officials and the public to understand progress made in achieving its transportation system goal. Efforts can then be refocused as needed to improve progress or shift areas of emphasis.

Public Funding Strategies

There are various funding strategies for the City to consider as it implements the plan recommendations. Certain federal and state funding and assistance programs are targeted to local jurisdictions for specific types of transportation-related projects. Additionally, there are mechanisms the City could establish to generate funds for needed transportation improvements through private development. A brief description of a range of options under these two potential strategies is provided below.

Transportation Enhancement Program - A Federal-aid funding program administered by SHA for transportation-related, community projects designed to strengthen the intermodal transportation system. Projects are intended to improve quality of life and enhance the transportation experience. The projects that can be funded are deemed non-traditional in nature. Bicycle and Sidewalk Retrofit Programs - These are State programs administered by the SHA Office of Planning and Engineering intended for minor projects along State highways.

Community Safety and Enhancement Program - This is a SHA program intended mainly for streetscape improvements in designated neighborhoods and priority funding areas.

Safe Routes to School Program - This is a Federal grant program administered by the SHA Highway Safety Office that provides funds to substantially improve the ability of primary and middle school students to walk and bicycle to school safely. Funds are available for infrastructure and non-infrastructure projects. The City has received two grants through this program as referenced in the footnote on page 4-14.

Congestion Mitigation and Air Quality Improvement Program (CMAQ) - This is a Federal highway and transit administration program intended for projects or programs that will improve air quality and help relieve congestion.

National Recreational Trails Program - This is intended for the development and maintenance of recreational trails.

Highway Safety Improvement Program - This is a Federal program administered by SHA intended to significantly reduce traffic fatalities. In Maryland, this program has sponsored Walkable Communities Workshops in various communities.

BRAC Revitalization and Incentive Zones - Maryland legislation will allow local jurisdictions to establish BRAC zones that would provide tax and financial incentives for the local jurisdiction and businesses. This program may help to spur transit-oriented development at the future Aberdeen multimodal station. The City received designation from the Maryland Department of Business and Economic Development for the Aberdeen BRAC Enhancement and Revitalization Zone on June 15, 2009.

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Development-based Funding Mechanisms

Transportation Impact Fees - A one-time fee charged to new development with a goal of raising revenue for construction of new or expansion of existing facilities. These fees allow local governments to shift the costs of new public facilities from existing taxpayers to those responsible for and materially benefiting from the development. Much like water and wastewater hookup charges, the fee charged should have a direct relationship or "nexus" to the impact created by the use. The jurisdiction must have a fee schedule, a method for determining the fees, an established benefit district (and possibly assessment districts within the district), and it must be updated. This can be accomplished by first identifying the amount of funding necessary to support a compilation of transportation improvement projects. The jurisdictions then determine the number of new trips that will be added to these transportation facilities upon build out of the local area. By dividing the total cost of improvements by the number of new trips that will be added to the roadways through local development, a cost-per-trip can be determined. In Maryland, local governments must obtain explicit authority from the General Assembly before imposing a development fee.

Road Club - Local improvement districts, or Road Clubs, are a tool by which a group of property owners can finance local area infrastructure needs over a long-term period. Road Clubs are typically used when the benefits of added value to individual properties exceed the cost of the improvement. Road Clubs require property owners to agree to participate and spread costs across multiple property owners proportional to the amount of benefit that individual properties receive. When a determination is made that the transportation facility is inadequate, the first to develop can proceed by making improvements that result in meeting adequacy requirements. The improvements made create excess roadway capacity, allowing other developers the opportunity to build and reimburse the original developer at a pro-rated amount for the capacity that their project will consume. When the capacity is consumed, the Road Club is closed.

Adequate Public Facilities Ordinance (APFO) — A growth management tool intended to link the timing of new development to the availability of facilities needed to service it. They are intended to slow the pace of development or delay development approval until adequate facilities are in place. Roads and schools are the most common type of infrastructure linked to APFOs, but other facilities can also be included. There should be a strong link between an APFO and a jurisdiction's capital improvement program and the comprehensive plan so that the needed infrastructure is put in place in a timely fashion. Impact fees are often linked with APFOs and provide for developers to contribute funds toward the provision of adequate infrastructure. Aberdeen intends to establish an APFO, and it should be considered whether transportation fees would be included among its provisions.

Tax Increment Financing - A tool available in Maryland through explicit action from the General Assembly. Tax increment financing can be used as an economic development tool to finance public transportation improvements within a re-development area by applying the new (or incremental) tax revenues generated by the project after completion. In essence, tax increment financing allows a given jurisdiction to borrow money to construct improvements in the near-term and then earmark the property tax revenue associated with the increase in assessed property value (the tax increment) to finance the borrowing. Tax increment financing may be appropriate for infrastructure related to large-scale, transit-station area development.





Appendix

Appendix #1 Aberdeen Area Transportation Analysis Zones

